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National  
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# **USSR: The Role of Compensation Agreements In Trade With the West**

**An Intelligence Assessment**

**Secret**

*ER 78-10660  
November 1978*

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## USSR: The Role of Compensation Agreements In Trade With the West

*Central Intelligence Agency  
National Foreign Assessment Center*

*November 1978*

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### *Key Judgments*

The USSR has increasingly looked to compensation agreements with Western firms to repay the costs of buying Western equipment and technology. The exports guaranteed under the more than 45 agreements concluded over the past decade in fact will have a value much larger than the \$8 billion worth of agreement-related imports from the West.

Earnings from agreements signed thus far will boost Soviet hard currency exports in the 1980s especially. The rise in earnings from compensation deals—from about \$830 million in 1977 to nearly \$4 billion in 1985—will soften the impact of the expected decline in oil production in the early 1980s and the resulting fall in oil exports to the West.

Although Soviet interest in compensation agreements with the West has intensified, the rate at which new deals have been concluded has fallen off considerably in the last four years. Internal Soviet problems and Western disenchantment stand in the way of negotiating new agreements. On the Soviet side, the policy of committing Soviet raw materials as the price for Western help in developing Soviet resources has been questioned. The Soviet bureaucracy, moreover, is ill equipped to handle compensation agreements, while Soviet doctrine clearly conflicts with Western demands for equity participation and/or management control. Even if agreements can be reached in principle, the primitive level of Siberian infrastructure and the difficulties involved in taking on several large development projects simultaneously will slow the proliferation of compensation arrangements.

On the Western side, companies are reluctant to accept many Soviet products. Unlike in 1974, when fuel and raw material shortages made long-term supplies of Soviet products attractive to Western firms, they now regard compensation agreements as a disagreeable condition for winning Soviet contracts. The depressed West European chemical industry is already worried about the chemical fertilizers and petrochemicals that the USSR soon will

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begin to export under compensation agreements. Deals involving energy-based exports, on the other hand, continue to interest Western companies.

Despite the reduced appeal of compensation agreements, the USSR is currently negotiating several large deals with Western firms. If concluded, they would increase Soviet raw material production and exports appreciably by 1985. The negotiations now under way center on chemicals, wood and wood products, oil, natural gas, and aluminum. Over the longer term, compensation agreements tied to Siberian natural gas deposits in Yakutsk and Urengoy, a major steel complex, copper deposits, and exploitation of offshore oil reserves could materialize.

But Soviet ability to conclude these agreements will turn on:

- Soviet willingness to modify its demands so as to entice Western commercial interest.
- The willingness of the West to extend much larger credits to the USSR.
- The pace of Soviet internal development, especially in Siberia and the Far East.
- Western requirements for Soviet raw materials coupled with a willingness to rely on the USSR as a supplier.

The expected downturn in oil production and other economic problems may make the USSR more accommodating as it tries to boost domestic energy production and develop alternative hard currency exports. The enthusiasm of Western firms will depend on the pace of economic growth and overall East-West relations.

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## USSR: The Role of Compensation Agreements In Trade With the West

### Background

The major impetus behind the rapid expansion of Soviet trade with the West in the 1970s has been the desire to acquire capital, technology, and equipment to develop Siberia and to expand production in certain high-priority industrial sectors. The USSR is counting on Siberia with its untapped deposits of oil, natural gas, coal, timber, copper, and other metals to support economic growth in the 1980s and beyond. Western help also has been sought in expanding production in several important industries—chemical fertilizers, petrochemicals, motor vehicles, and both ferrous and nonferrous metals—in which Soviet technology lags the West or in which expanded capacity is needed quickly.

Largely because of the extensive use of long-term Western credits to accelerate the acquisition of capital goods from abroad, Soviet debt to the West has grown from less than \$2 billion at the end of 1970 to roughly \$16 billion at the end of 1977. To provide a large share of the foreign exchange required to meet debt repayment obligations, the USSR has sought compensation agreements with Western firms. These agreements cover Soviet exports as well as imports; a Western firm contracts to supply equipment for a Soviet project, and the Soviets obtain guarantees from Western firms to purchase Soviet products—often from the output of the project.<sup>1</sup>

Although Moscow concluded its first compensation agreements in the 1960s,<sup>2</sup> it was not until

the early 1970s that the Soviets began a major push. In 1971-72 several massive projects proposed to Western firms called for product payback.<sup>3</sup> Meanwhile, compensation agreements have received strong endorsement from the Soviet leadership. Brezhnev's February 1976 report to the 25th Party Congress stressed the importance of compensation agreements in the 1976-80 plan. In early 1976, a spate of articles in the Soviet press pointed to compensation agreements as a new form of economic collaboration with the West. Several technical articles have set forth the theoretical criteria for assessing the efficiency of compensation agreements.<sup>4</sup> Since 1976, Soviet policy statements about trade with the West have usually given prominence to the virtues of compensation agreements.

Compensation agreements indeed offer several advantages to the USSR. They are an economical way to obtain equipment from the West. Soviet purchases are financed by long-term government-backed credits with very low real interest rates.<sup>5</sup> Since, for a given project, compensation exports will—at a minimum—roughly match debt service requirements, the real cost of the equipment to the USSR is essentially the alternative output sacrificed by assigning domestic resources to building the project and—later—producing the portion of the output used as payback.

Compensation agreements also reduce risk. The heavy reliance of the Soviet economy on

<sup>1</sup> For a discussion of the definition and mechanics of compensation agreements, see appendix A. These agreements are also called "product payback" or "product buy-back."

<sup>2</sup> The first ones were a West German deal involving Soviet shipments of phosphate rock in return for phosphorus furnaces (1966), a gas-for-pipe deal with Austria (1968), and a timber agreement with Japan (1968). Compensation agreements bear little relationship to the concessions granted to Western firms in the 1920s. In the latter case foreign firms—in return for royalty payments to the Soviet Government—were allowed exclusive rights to develop and exploit certain commercial opportunities within the USSR, investing capital goods, technology, and in some cases labor.

<sup>3</sup> The product payback form of transaction is not limited to Soviet-Western deals. A similar pattern has developed for Soviet projects in which East European countries are investing. Soviet aid projects with less developed countries reverse the flows: Soviet aid is often repaid by later deliveries from the project.

<sup>4</sup> V. G. Vasil'yev and V. A. Sorokin, "On the Question of Economic Effectiveness of Compensation Agreements," *Dengi i Kredit*, August 1976, and V. Savin, "The Effectiveness of Cooperation on a Compensatory Basis," *Foreign Trade*, May 1977.

<sup>5</sup> Loans for the projects carry an average interest rate of about 7 percent, roughly equal to the inflation in world prices of the products to be delivered by the Soviets as repayment.

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planning makes reduction of risk important to Soviet managers, who have found foreign trade with the West particularly difficult to plan. The latest Western recession, for example, hit Soviet exports hard. Reduced demand in 1975 virtually halted the rapid growth in Soviet hard currency exports, driving home to Moscow the dependence of Soviet exports on Western economic conditions. Under compensation agreements Soviet industrial ministries and foreign trade organizations are guaranteed long-term export markets, providing protection from developments in the West that would otherwise reduce Soviet export earnings and hard currency reserves.

The Soviet drive to conclude compensation agreements is an effort to placate those—both at home and in the West—who are concerned with the rapid growth of the USSR's debt. Soviet officials have emphasized the share (about one-half, according to one senior official) of the debt that has been incurred to import equipment for compensation projects and have pointed to long-term export contracts under these agreements as proof of the USSR's ability to service its debt.

Compensation agreements, by providing for a guaranteed market, will also help Moscow establish export industries. Soviet enterprises will gain experience in producing for export while Soviet products establish niches in Western markets. In all likelihood, the USSR hopes to renew export contracts after compensation agreements expire.

#### Review of Existing Agreements

The USSR has concluded more than 45 compensation agreements with the West in the past decade.<sup>6</sup> (The agreements are listed in appendix B; project locations are shown in figure 1.) Under these agreements, almost \$8 billion in Western equipment and technology will be installed in the Soviet Union. In some cases—natural gas and coal—equipment, technology, and pipe were imported to develop export indus-

<sup>6</sup> Soviet officials claim more than 60 compensation agreements with Western firms. This number probably includes some which have not been signed, some very small deals, some contracts which do not fit the definition used in this paper, and some exaggeration. For example, the Soviets identify the Moscow World Trade Center, financed by US Eximbank credits, as a compensation agreement because the complex will be rented to Western firms.

tries; export earnings guaranteed under compensation agreements far exceed the capitalized cost of project-associated imports. In other instances (chemical plant imports, for example), the primary Soviet goal has been to develop productive facilities to meet domestic needs, siphoning off only that portion of output required to repay project-associated debt.

#### Natural Gas

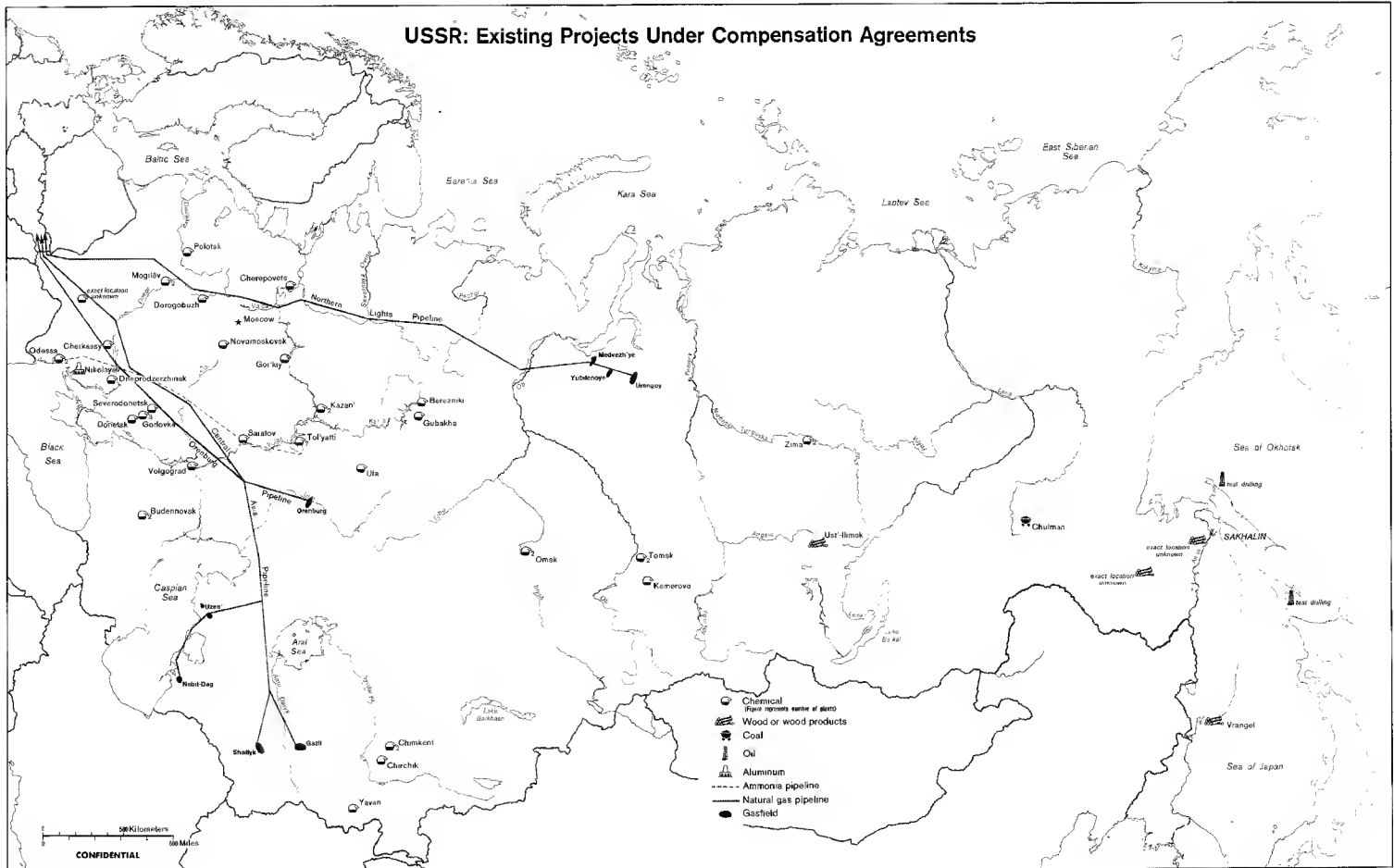
The most important agreements in terms of boosting Soviet exports have been the gas-for-pipe deals, which provide for Western exports of large-diameter pipe to be installed in pipelines to carry Soviet gas to Western Europe. The gas-for-pipe deals will generate Soviet exports worth many times the \$2.8 billion spent on Western pipe and pipeline equipment. Under some of the agreements, exports will continue into the 21st century (see table 1). The first gas deal was signed with Austria in 1968, and similar contracts have since been signed with Italy, West Germany, and France. Soviet hard currency gas exports under these and supplementary contracts reached 11.5 billion cubic meters in 1976 and are scheduled to reach 34 billion by 1985 as additional pipelines are completed. Hard currency earnings from gas sales will account for 60 to 75 percent of Soviet earnings from compensation agreements signed so far (see table 2).

The earnings from natural gas sales will depend on hard-to-predict fuel prices. The contracts call for prices to be adjusted in line with changes in prices of other fuels, assuring the Soviets of higher earnings as Western energy prices rise. Soviet trade data show that prices received in 1976 were about half the \$60 per thousand cubic meters charged by other gas exporters. Prices probably rose substantially in 1977,<sup>7</sup> largely because of Moscow's successful renegotiation of a gas contract with Italy. The Italians paid only \$18 per thousand cubic meters in 1976; the newly negotiated price for the second half of 1977 was \$59.

The Soviets will probably benefit from large gas price increases for the next several years.

<sup>7</sup> The USSR's omission of quantity data on gas exports in 1977 precludes an accurate estimate of prices.





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Table 1

## USSR: Scheduled Natural Gas Exports

	Billion Cubic Meters				
	Austria	France	Italy	West Germany	Total
1976 <sup>1</sup>	2.8	1.0	3.7	4.0	11.5
1977	2.3	1.5	6.5	5.0	15.3
1978	2.4	2.0	7.0	7.0	18.4
1979	2.4	2.0	7.0	8.5	19.9
1980	2.4	4.7	7.0	9.0	23.1
1981 <sup>2</sup>	2.7	5.0	7.0	10.5	25.2
1982	3.0	5.5	7.0	11.5	27.0
1983	3.3	6.0	7.0	12.5	28.8
1984	3.8	7.0	7.0	13.5	31.3
1985	4.2	7.7	7.0	15.0	33.9
1990	4.2	7.7	7.0	15.0	33.9
1995	2.8	7.7	7.0	8.0	25.5
2000	2.8	3.7	7.0	8.0	21.5

<sup>1</sup> Actual exports reported in USSR trade statistics.<sup>2</sup> Amounts for 1981 and thereafter include Soviet deliveries to Austria, France, and West Germany under a switch agreement with Iran. Iran will receive most of the revenues from the gas to Western Europe, while the USSR will be paid transit fees. Thus, foreign exchange earnings will be considerably lower than for bilateral Soviet deals with West European gas customers.

Table 2

## USSR: Scheduled Compensation Exports

	Million US \$		
	1977	1980	1985
Total	828	1,094	3,933
Natural gas	566	1,192	2,948
Chemicals	15	281	326
Wood products	239	403	10
Coal	0	55	576
Metals	8	63	73

There will be strong upward pressure on gas prices because of (1) rising energy prices in general, (2) even faster increases in gas prices to narrow the gap between oil and gas prices, and (3) Soviet pressure to extract price increases on their gas. Thus, we project annual price increases of 10 percent through 1980 and 15 percent thereafter. These prices would earn Moscow \$1.2 billion in 1980 and nearly \$3 billion in 1985 under current gas delivery schedules.

**Chemicals**

The Soviet chemical industry has been the main customer for Western equipment over the past several years, and \$3.2 billion of the orders have been delivered under compensation agreements.<sup>8</sup> Unlike the gas-for-pipe deals, chemical compensation agreements usually call for exports approximately equal to the value of imports or to the value of credit repayments plus interest.

In the only major compensation agreement with the United States, Occidental Petroleum and Chemico Construction are helping to build four ammonia plants at Tolyatti, an ammonia pipeline to Odessa, and port facilities to ship ammonia from Odessa to the United States.<sup>9</sup> Part of the \$400 million project is financed by US Eximbank credits. Occidental began accepting ammonia early in 1978; the port facilities were dedicated in August 1978.

Most Soviet chemical compensation agreements, however, are with West European and Japanese firms. Italy, Japan, and France will also receive Soviet ammonia as the export component of compensation agreements for several ammonia and other chemical plants. There are also a number of West European—particularly West German—compensation agreements for petrochemicals.

**Other Major Agreements**

There have been a few large deals in other industries, particularly three timber agreements with the Japanese. Under the first—signed in 1968—Tokyo exported \$166 million in bulldozers, other timber-processing equipment, and consumer goods in exchange for 8 million cubic meters of Soviet timber, wood chips, and pulp that were delivered during 1969-73. This was followed by a 1971 agreement for another \$50 million in Japanese equipment and Soviet ship-

<sup>8</sup> See ER 78-10554, *Soviet Chemical Equipment Purchases From the West: Impact on Production and Foreign Trade*, October 1978, Unclassified.

<sup>9</sup> Under a separate agreement (not counted as a compensation agreement), Occidental will exchange superphosphoric acid for deliveries of Soviet ammonia, potash, and urea. This counterpurchase agreement is to run from 1978 to 1999 and could be worth \$1 billion annually in two-way trade.

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ments of wood chips and pulpwood. According to the third agreement, signed in 1974, Japan will export \$500 million in equipment and \$50 million in consumer goods in 1975-79 and will take delivery of 17.5 million cubic meters of logs and 900,000 cubic meters of wood products from the USSR.

Japan in 1974 also agreed to help the Soviets develop the South Yakutsk coal fields with \$450 million worth of equipment in exchange for coking coal. Scheduled coal deliveries include 1 million metric tons per year from the Kuznetsk deposits in 1979-98 and 3.2 million metric tons per year from Yakutsk beginning in 1983 (when the completion of the Baikal-Amur Magistral (BAM) railway is scheduled), reaching 5.5 million tons in 1985, and continuing at that level through 1998.

In the only major compensation agreement for a metallurgy project, Pechiney-Ugine-Kuhlmann of France agreed to supply an alumina plant and will receive 100,000 tons of aluminum bars annually when the plant begins operation, probably about 1980.

#### **Role of Compensation Agreements in Total Soviet Exports**

Several of the projects financed under compensation agreements are now under way on roughly coincident timetables. They were proposed in the early 1970s, signed in the mid-1970s, and are now in the import-construction stage. Production and exports from most of these projects will begin in one or two years. Because compensation exports in most cases will not displace traditional Soviet exports, they will add a substantial layer to the export base. As these compensation agreements come on stream, they will therefore provide a major boost to Soviet hard currency exports. Compensation exports from signed deals will rise from about \$830 million in 1977 to \$2 billion in 1980 and nearly \$4 billion in 1985 and will constitute a major share of hard currency exports by 1985.<sup>10</sup>

An analysis of compensation agreements in isolation shows that revenues from the deals will

<sup>10</sup> All figures in current dollars.

far exceed costs, yielding Moscow substantial increases in import capacity in the 1980s (see figure 2). Largely because of the profitable gas and coal deals, the Soviets will net nearly \$4 billion annually by 1985, when most of the debt associated with Soviet imports will have been repaid.

Moscow will depend heavily on compensation exports in the 1980s. Soviet hard currency exports increased rapidly in the early 1970s; however, recent export growth has been slower—the annual increase in 1975-77 was about one-half the 36-percent average annual growth from 1970 to 1974. The Soviets increased hard currency oil sales to about 1.1 million barrels per day in 1977—nearly 10 percent of production. The amount of oil available for export to the West should fall absolutely in the early 1980s because of an expected decline in production. Although prospects for other raw material exports are brighter, they are unlikely to offset the loss of oil revenues.

#### **Some Constraints on Soviet Use of Compensation Agreements**

The impact of the looming oil crisis on foreign trade thus heightens the importance of compensation agreements. In the early 1980s, the increase in compensation exports will be a sizable offset to the decline in oil exports. Nonetheless, the growth of hard currency export earnings will probably be lower than in the past. Despite greater Soviet interest, few major compensation agreements have been signed since 1974. In that year, \$2.4 billion in such agreements were concluded, including the Occidental fertilizer agreement, two major resource development projects with Japan, and three natural gas deals with West Germany and Austria. In the following three years the annual average of deals concluded was roughly \$1 billion. The decline is a function of both internal Soviet problems and disenchantment in the West.

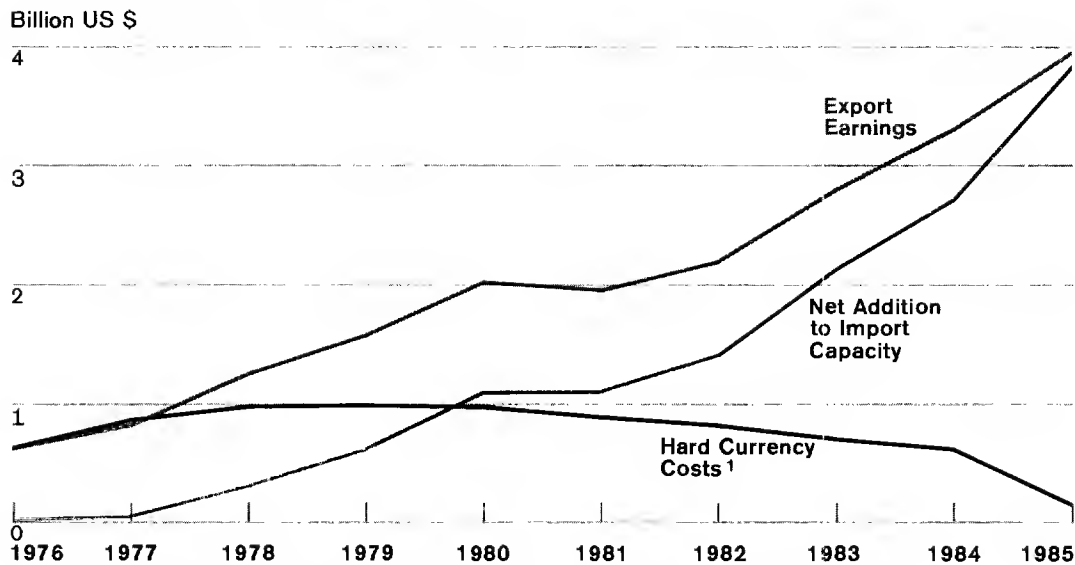
#### **Domestic Constraints**

Compensation deals that require a continuing Western presence, Western ownership, or Western control over production are alien to Soviet doctrine. The USSR is reluctant to allow any

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USSR: Estimated Hard Currency Flows From Signed Compensation Agreements

Figure 2



1. Downpayments and debt service on imports under existing compensation deals.

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form of Western ownership within the USSR and, to date, has been unsuccessful in attempts to satisfy Western equity demands by offering to structure jointly owned holding companies in the West.<sup>11</sup> While the equity problem can theoretically be circumvented, other issues associated with Western participation cannot. Moscow has yet to accede to on-site managerial and quality controls demanded by Western firms. It has also refused Western presence of any form in sensitive areas, making it difficult to take advantage of Western know-how associated with oil and gas exploration or to satisfy insistence on confirming Soviet oil and gas reserve figures.

There is still high-level resistance within the USSR to increased dependence on the West.

<sup>11</sup> In the mid-1970s the USA Institute of the USSR Academy of Sciences attempted to design a legal framework which would permit de facto foreign capital and management participation in what must de jure remain wholly Soviet enterprises. One approach to the problem called for establishing jointly owned firms abroad which would hold controlling blocks of stock in domestic Soviet enterprises.

Traditionalists like Suslov show much less enthusiasm than Brezhnev for a large-scale expansion of technological links with the West. Even Premier Kosygin, the leading advocate of expanded economic ties in the late 1960s, appears discomforted by the extent of economic interdependence promulgated by Brezhnev and has been reported

as being strongly opposed to exporting Soviet resources in return for Western assistance.<sup>12</sup> Soviet policy in general clearly has followed the views of the advocates of acquiring Western help, but the opponents have won some individual victories. In early 1976, for example, rumors circulated that Minister of the Gas Industry Orudzhev would be replaced because of his resistance to foreign participation in gas projects. Two years later, however, Orudzhev is still in office and Moscow remains cautious

<sup>12</sup> *Soviet Technological Progress and Western Technology Transfer to the USSR: An Analysis of Soviet Attitudes*; prepared for the Office of External Research, Bureau of Intelligence and Research, US Department of State; July 1978; pp. 21-23.

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regarding new gas export deals pending a fundamental review of energy policy in connection with the long-awaited 15-year economic plan. At this point, the Soviets cannot be sure that they will have enough gas to enter into a wide range of new agreements.

Aside from differences over the desirability of compensation deals, the Soviet economy can take on only so many major projects at the same time. Soviet officials have estimated that compensation projects require three or four rubles in Soviet resources per ruble of imports. Construction bottlenecks apparently have contributed to a slowdown in new agreements. The plan for construction of compensation projects in 1978 is 1.3 billion rubles, 164 percent greater than actual construction on projects in 1976. Construction efforts have not kept pace. A Soviet construction official blames poor planning, leading to a lack of coordination among construction enterprises, end-user ministries, and foreign suppliers for the poor performance.<sup>13</sup> After construction is finished, production often starts slowly because supplies have not been organized properly. In some cases supply problems will persist because of shortages of high-quality Soviet human and material resources required by advanced Western technology and equipment.

All of these problems stem in part from the undeveloped nature of the Soviet economy, particularly in Siberia. The Soviets obviously believe that an accelerated construction of the BAM and its feeder lines will permit more concrete discussions on large resource development projects; yet the line is not scheduled to be completed until 1983. Even where a transportation net exists, requirements for infrastructure investment will be formidable, sometimes raising the project-associated costs above the potential economic value of a project. In particular the lack of adequate housing and consumer amenities makes it difficult to attract and retain the manpower

<sup>13</sup> I. A. Bystrov, "Special Attention for Compensation Construction Projects," *Promylennoye Stroitel'stvo*, No. 4, 1978, Moscow. Citing similar problems, Foreign Trade Minister Patolichev recently told French officials concerned about the low level of Soviet orders that the situation would persist for at least one or two more years.

required to build and operate major production facilities.

Finally, the Soviet foreign trade bureaucracy does not handle compensation agreements easily. The major problem is coordination: all foreign trade organizations (FTOs) responsible for Soviet imports and exports related to the project must be brought into the agreement. One factor that has limited the range of projects proposed by the Soviets is the desire to keep compensation agreements within a single industry so that the ministry which uses the imported equipment also produces the export goods stipulated in the agreement. In 1974, the Ministry of Foreign Trade created a department headed by Deputy Minister Vladimir Sushkov to promote and coordinate compensation agreements. Some increase in flexibility has resulted, but agreements cutting across industry lines still present formidable difficulties. It is too early to predict whether the current reorganization of the Soviet foreign trade system will have any impact on the handling of compensation agreements.

#### Coolness in the West

For their part, Western firms show little enthusiasm for most of the compensation deals proposed by Moscow. Western firms compare the potential projects in the USSR with similar deals available elsewhere where conditions regarding equity participation and managerial control are far more favorable and where the negotiating process is far less cumbersome. In addition, the Soviets have often tabled harsh financial demands including (1) long-term credits to finance equipment required to develop related infrastructure as well as the production facilities, (2) medium-term credits to cover consumer goods purchases needed to defray local costs, and (3) deferred payments on the credits during the full period of plant construction.

The large number of agreements signed in 1974 reflected in part the eagerness of Western firms to ensure long-term access to raw materials at a time of shortages. More recently the West has experienced slower economic growth, and excess capacity has appeared in some of the

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industries that produce products the Soviets would like to export. As a result, many firms are unwilling to enter into compensation agreements; those that do view them as competitive necessities. Soviet negotiators make it clear that if other factors are roughly equal, the Western firm willing to sign a compensation agreement will win the Soviet order.

The Western companies perceive a number of pitfalls in agreeing to accept deliveries of Soviet products over a long period. Western importers insist on favorable contracts under which prices are discounted and also adjusted annually or semiannually in concert with changes in a previously agreed-upon Western market price. Although guaranteed access to raw materials and semimanufactures is thus attractive during periods of commodity shortages, it can become a disadvantage when demand is slack and the Western firm finds it hard to market the products or to use them in its own plants.

Some Western firms are also reluctant to conclude compensation agreements because they do not want to sponsor additional competition in their markets. This is already a serious problem for the depressed West European chemical industry, which has been hurt by chemical exports from the East even though the largest increases in chemical exports from the USSR are still two to three years away. Soviet exports of ammonia to the West, for example, are scheduled to exceed 3 million tons in the 1980s—an amount roughly equal to total free world trade in ammonia in recent years. The European chemical industry has requested help from the European Community; at a minimum, a system to monitor compensation agreements will probably be established.

On the other hand, Western concern over excessive dependence on Moscow for energy supplies has lessened in recent years, largely because of Western Europe's desire to find alternatives to oil of the Organization of Petroleum Exporting Countries (OPEC). About 4 percent of Western Europe's total natural gas supply now comes from the Soviet Union; by 1985 the share will rise to about 11 percent. Of the largest Soviet

customers, only Austria will depend substantially on Soviet gas (see table 3). The USSR will probably continue to be Austria's only foreign source of gas, which by 1985 will constitute 14 percent of Austria's total energy needs. For other Soviet gas customers—Italy, France, and West Germany—the USSR will provide an estimated one-fifth of gas supplies in 1985 but only 3 to 4 percent of their total energy. The degree of danger in this dependence depends on (1) the likelihood of a Soviet cutoff of supplies and (2) the availability of alternatives. The size of Soviet gas exports in the 1980s means that an embargo on gas to Western Europe would not have much impact on total energy supplies in the affected countries, although a Soviet cutoff would cause a substantial reduction in gas supplies which would be difficult to replace in the short run.

Technical problems pose a greater threat to Moscow's reputation as a dependable source of gas than the possibility of an embargo. Italy and Austria did not receive the Soviet gas they were promised in 1977 and 1978—presumably because of declining production in the Ukrainian gasfields that are the principal source of the gas.

Table 3

Selected West European Countries: Dependence on  
Soviet Natural Gas Imports

	Percent Share		
	Natural Gas Imports	Natural Gas Supply	Total Energy Supply
Austria			
1975	100	47	6
1980	100	48	9
1985	100	76	14
Italy			
1975	22	9	2
1980	41	23	4
1985	27	18	3
France			
1975	0	0	0
1980	21	28	2
1985	16	22	3
West Germany			
1975	11	7	1
1980	18	13	2
1985	29	21	4

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Moscow promised to make up for the shortfalls by increased future deliveries.

### **The Climate for New Deals**

The USSR's mounting economic problems clearly incline the leadership toward compensation agreements. The need to develop Siberia and push up productivity increases requirements for Western capital, technology, and equipment. The same economic problems, however, cut into the USSR's export base and the hard currency needed for purchases from the West. The number and scope of projects now under negotiation attest to the Soviet commitment to compensation agreements as the preferred solution to the problem of financing imports from the West in the 1980s. But the pace at which new deals will be made will depend on how effectively the USSR and its potential partners in the West overcome the problems discussed above.

If the Soviets are to undertake and complete the projects now under discussion, they will first have to show a stronger and more general commitment within the Soviet Government to attract Western participation. Moscow will have to overcome bureaucratic inertia, cut negotiation times (possibly by abandoning the past hard line on price, guarantees, credits, and other contract terms), and soften restrictions on the Western presence in the domestic economy. The latter condition is particularly important in energy projects. Without on-site inspection by Western experts, exploration times to prove up reserves will be longer than necessary, and Western firms will refuse to participate. Although the Soviets seem to be moving in this direction, they are not moving decisively or quickly.

The Soviets also will need a great deal of Western financing. The credits for the projects now considered likely could run between \$10 billion and \$15 billion; credits for projects that have been suggested would perhaps amount to another \$20 billion. The Soviet hard currency debt is now about \$16 billion. The \$30 billion to \$35 billion in credits necessary for these projects spread over a 10-year period compares to the level of export credits the Soviets have been

receiving for all of their equipment purchases. Although the West would thus have to provide the Soviets with greater amounts of credit than in the recent past, private bankers and government lending agencies appear to be more receptive to Soviet credit requests that are backed by export agreements.<sup>14</sup>

The current state of certain Soviet bilateral relations complicate Soviet attempts to move ahead on compensation agreements in a special way. For example, the Soviets would like the United States to take the lead in many compensation agreements. Despite the greater distances involved, Moscow views the United States as a huge potential market for Soviet compensation exports. Moreover, the United States possesses unique technology and production capacity in a few areas—particularly oil exploration and drilling—that the Soviets badly need. The Soviets want US Government approval implied by the granting of Eximbank credits, and other sources of capital are insufficient to finance the multi-billion dollar projects the Soviets want. Without Eximbank credits—the US Eximbank window has in effect been closed to the Soviets by legislation since 1974—the prospects are poor for conclusion of major compensation agreements in the near term. Moreover, uncertainties regarding the control of oil and gas equipment exports to the USSR cloud the prospects for energy projects that the Soviets have discussed with US firms.

Soviet-Japanese relations also pose obstacles to Moscow's development plans. Japan is a natural partner for the USSR in the development of Soviet resources because of its proximity to Siberia and because of its own weak raw material resource base. The Japanese, however, have hesitated at times to cooperate in a big way in the development of Siberia because of China's opposition and Tokyo's desire to avoid depen-

<sup>14</sup> Lenders tend to overlook the fact that the USSR's debts are obligations of the state as a whole, not of the individual project or enterprise which receives the goods on credit. Exports from the individual project receiving the financing, while covering the repayment of project associated debt, make only a small contribution to overall Soviet export potential—the key element of creditworthiness.

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dence on the USSR for raw materials. The \$20 billion eight-year trade agreement signed by Japan and China in February 1978 calls for China to export oil and coking coal—two of the major commodities the Soviets would like to ship from Siberia.

### Outlook

#### Deals Likely in the Near Term

Negotiations between Western firms and the USSR are far advanced on several important projects. These deals could be signed within the next year or two. Given the lead times on these projects, some could be operational (and generating exports) by the early 1980s and almost all could be on stream by 1985. The large compensation agreements most likely to be under way before the start of the next five-year plan in 1981 include the following (see figure 3).

*Yenesei River Timber.* The existing forestry development agreement with Japan, due to expire in 1980, will probably be followed by an agreement for a pulp and paper project on the Yenesei River. The Soviets have discussed this project with Japanese and US firms for several years. Moscow originally wanted to include the project in the 1976-80 plan, but hard currency stringencies forced postponement until the next five-year period.

*New Gas-for-Pipe Deals.* A recent energy forecast indicates that Western Europe will need an additional 35 billion cubic meters of natural gas annually by 1985. Moreover, the expected decline in Dutch gas exports in the mid-1980s (which now supply one-fifth of the West European gas market) will provide the Soviets even greater opportunities for gas sales. The USSR could conceivably supply another 5 billion to 10 billion cubic meters per year more than the 34 billion already scheduled. But Moscow has resisted recent efforts by a number of West European countries to boost Soviet deliveries because of current uncertainties regarding future domestic requirements. Nonetheless, Moscow has found gas-for-pipe deals to be extremely profitable and the need to boost nonoil exports in the 1980s should rekindle Soviet interest in compen-

sation agreements for natural gas once the long-run energy picture is clearer. Valves and compressors, rather than pipe, will constitute the major bottleneck in pipeline construction, and the Soviets will have to turn to the West for these.

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*Tomsk Chemical Complex.* The biggest chemical deal now under negotiation is a refinery-petrochemical complex at Tomsk in Siberia.<sup>16</sup> The project has been recently stretched out because the Soviets now plan to have only 50,000 b/d of Siberian crude oil available as feedstock rather than the 200,000 b/d originally planned.

<sup>15</sup> According to some sources the discount will end when the accumulated profits from the discount double the value of credits extended for exploration.

<sup>16</sup> An earlier proposal called for construction of a pipeline from the Tyumen oilfields to a Soviet port to ship 800,000 b/d to Japan. The deal seemed close to fruition in 1972, but the Soviets reduced the amount of oil offered from 800,000 to 500,000 b/d, and the Japanese backed out.

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The current five-year plan allocates funds for one 600,000-ton-per-year plant probably worth about \$1 billion. The Soviets hope to build a second ethylene plant in the late 1980s when more crude oil is available. Another problem is that the Japanese and German firms bidding on the project do not want the chemical products the Soviets are offering to export.

*Sayansk Aluminum Smelter.* The Soviets want to build a 400,000-ton-per-year aluminum smelter at Sayansk in Siberia. Pechiney-Ugine-Kuhlmann of France and a consortium of Kloeckner of West Germany and Alcoa of the United States are the leading contenders for the \$500 million to \$600 million contract. The Soviets may award the contract by the end of 1978. The deal would involve annual exports of about 100,000 tons of aluminum bars to Western Europe and the United States.

On balance, we think new agreements might add more than \$2 billion per year to the estimated \$4 billion of compensation exports already contracted for in 1985. The calculation assumes: sales of an additional 5 billion cubic meters of gas to Western Europe (\$600 million to \$700 million); a third timber agreement with Japan (\$300 million to \$400 million); oil exports of about 100,000 b/d to Japan from the Sakhalin project (\$1 billion); several smaller deals—the chemical plants at Tomsk, the Sayansk aluminum smelter, and a few other plants.

#### Possible Development Projects

The Soviets are pushing several other projects that are either less likely to come to anything or less imminent than those discussed above. These additional projects, which could boost export earnings by several billion dollars per year, are concentrated in the energy area. But other possibilities include development of metal ore deposits and timber resources. With many of these projects located in Siberia, their implementation is likely to be tied to the completion of the BAM railroad, which is still about five years away.

*LNG: Yakutsk.* In the early 1970s the Soviets proposed that the United States join Japan in the Yakutsk liquefied natural gas project. As pres-

ently envisioned, the project would require a 3,700-kilometer pipeline from Vilyuisk to the port of Olga on the Sea of Japan, liquefaction facilities, and three LNG carriers for Japan and eight for the United States. Japan and the United States each would receive 10 billion cubic meters of gas annually.

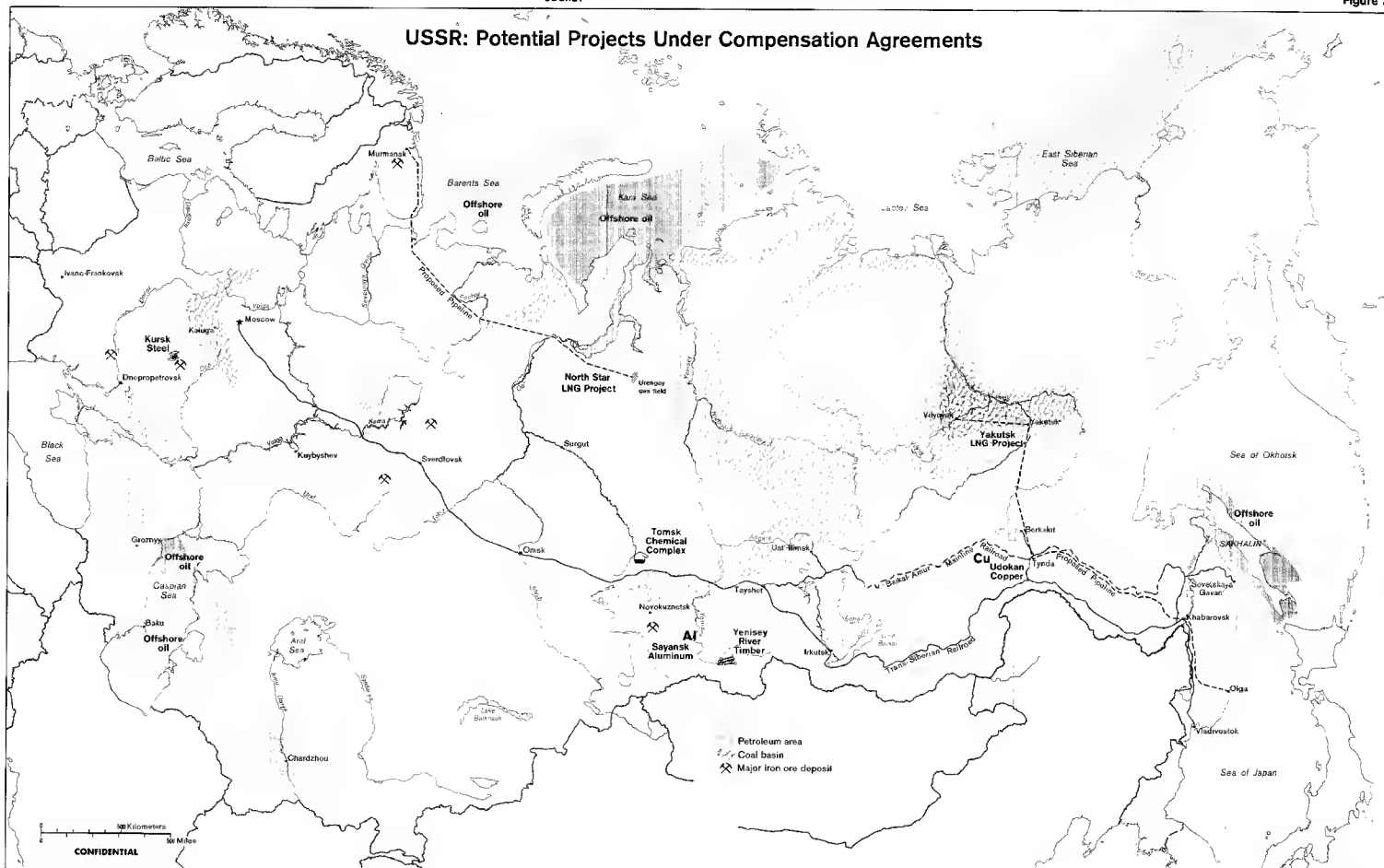
Yakutsk gas reserves must be confirmed before development can begin. Proved reserves are now about 800 billion cubic meters, and the 1 trillion cubic meters required for full development will probably be proved in 1979. The three parties will then decide whether to undertake the development phase. Delivery of Soviet gas probably could not begin until the late 1980s. The Japanese have indicated that they will not continue with the Yakutsk project unless the United States participates.

*LNG: North Star.* The North Star deal calls for development of the Urengoy gasfield in western Siberia, which (unlike the Yakutsk deposits) already has adequate proved reserves. The original proposal called for a 2,400-kilometer pipeline to Murmansk, a gas liquefaction plant at Murmansk, and purchase of 20 LNG tankers to carry 10 billion cubic meters of gas annually to the US east coast for 25 years. North Star first was conceived as a US-Soviet compact. When US Government approval and Eximbank financing were not forthcoming, the US consortium in 1976 turned to Western Europe as a source of financing and as a customer for 25 percent of the gas, which would be shipped by pipeline. By that time, however, it was too late to include the project in the 1976-80 plan, and in early 1977 the Soviets and the US parties agreed to shelve the project indefinitely. Although both sides are still interested in seeing the project through, further progress will be contingent on the willingness of the US Government to allow large-scale imports of Soviet LNG.

*Kursk Steel.* A consortium of West German firms signed an agreement with the USSR in

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1974 to supply an iron ore pelletizing plant, a direct reduction plant, two rolling mills, and an electric steel plant at Kursk. The deal originally called for the Soviets to pay cash for the \$1 billion project, and supply West Germany with unspecified amounts of sponge iron pellets and semifinished steel in the 1980s. The project has barely limped along: design changes and inflation have pushed the cost to between \$3 billion and \$4 billion so that the project will probably be scaled down drastically; the first major equipment contracts were not signed until late 1977 and then apparently on a cash basis; and the Germans now show little interest in exports from the project. Even if final agreement is reached soon, the first stage of the project could not be completed before 1983.

*Udokan Copper.* The Soviets have discussed development of the copper resources at Udokan with Western firms since the mid-1960s. In 1975-76 the Soviets requested proposals for a pilot copper processing plant from US, British, and Japanese firms. Then in 1977, Moscow decided to postpone the entire project—estimated to cost \$2.5 billion—until the BAM is completed. Thus, the Soviets may include the Udokan project in the 1981-85 plan.

*Offshore Oil.* The Soviets are also interested in developing offshore oil deposits in the Caspian, Barents, and Kara Seas. Activity so far has mainly involved straight equipment purchases rather than compensation agreements that would provide for oil exports to the West. A recent proposal by Armcro International and Phillips Petroleum calls for exploration and development of Arctic and offshore oil reserves and exports of oil to the West as repayment. The Soviets have also held discussions with British and French firms concerning the joint development of oil resources, but apparently no concrete proposals were made. Moscow wants to keep Western personnel away from some of these areas for security reasons, and technology to develop offshore Arctic deposits is not yet available even in the West.

#### **Extension to Manufactured Goods?**

Moscow has touted compensation agreements as a new form of collaboration with the West. So

far, the projects are being carried out on a turnkey basis, in which the participation of the Western firm is essentially completed once the equipment is installed and production is under way. The plant and facilities are owned, managed, and staffed by the USSR. The Western firm has a claim on part of the output, but no equity in the project or control over product quality.

The Soviets have expressed interest in compensation deals involving manufactured goods, but have failed to conclude such agreements. Although increasing manufactured goods exports for hard currency is a longstanding Soviet goal, manufactured goods still represent only 6 percent of Soviet exports to the West. This disappointing performance has been the result of several factors: insufficient incentives for Soviet enterprises to produce for export; shabby quality; poor marketing know-how; inadequate distribution and servicing systems; and inability to adapt quickly to changing Western tastes. These problems also apply to exports covered under possible compensation agreements, and to them must be added the skepticism of Western firms regarding their ability to market the products on a long-term basis.

The Soviets thus far have refused Western demands for continuing participation to ensure quality. The question, however, is clearly still being considered in the Soviet Union, with strong support for each side. Deputy Minister of Foreign Trade Sushkov and the leadership of the Institute of the USA and Canada are apparently heading a drive to win Council of Ministers approval for increased Western participation while some sections of the Ministry of Foreign Trade oppose such a move.<sup>17</sup>

If approval is given, the test case could be a joint venture to design and produce a new Soviet automobile. Sushkov led a Soviet delegation to the Big Three US automakers in early 1978 that proposed that the Western partner provide the design and production technology (with continuous updating) for a modern small front-wheel

<sup>17</sup> Ye. S. Shershnev, "Soviet-American Economic Cooperation: Problems and Prospects," *USA: Economics, Politics, Ideology*, May 1976, and V. Sushkov, "Compensatory Long-Term Trade and Industrial Cooperation Between the USSR and the Industrial Capitalist Countries," *Foreign Trade*, May 1977.

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drive car to be produced at the Moskvitch auto plant. A portion of the output would be sold in the West—presumably in Western Europe—through the Western firms' marketing system. Sushkov, who presented the proposal, acknowledged that the deal does not have the full support of the Soviet leadership, and at least one of the

companies has already withdrawn from discussions. Other deals proposed to US firms for joint ventures to produce and export spark plugs, diesel engines, truck axles, and computer equipment have foundered largely because of Moscow's failure to agree to Western firms' demands for an ongoing role at a Soviet enterprise.

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## APPENDIX A

### COMPENSATION AGREEMENTS: WHAT THEY ARE AND HOW THEY WORK

*A legal analysis of compensation agreements shows that it is very difficult to give them a precise and versatile definition because of their great variety of stipulations.*

A. Belov, Deputy Chief of the Treaty and Law Department, USSR Ministry of Foreign Trade, in March 1976.

As Belov's remark indicates, there is some confusion in the USSR about how to define compensation agreements. The confusion in the West is even greater, with the usage of a number of terms to describe and differentiate among various types of agreements: *countertrade*, a general term often used synonymously with compensation agreements, usually refers to transactions which call for both exports and imports; in *counterpurchase* deals, the exchanges are made more or less simultaneously and on a cash basis; *barter* is a primitive form of counterpurchase in which the exchanges are balanced and no currency payments are involved; *product payback* arrangements are compensation agreements which specify that exports come from the project which receives the imports. These terms are often used incorrectly or interchangeably.

In this study, all of the above are described as either counterpurchase or compensation agreements. Although counterpurchase arrangements are most prevalent in Eastern Europe, the USSR has some major counterpurchase agreements, of which the best known is the barter portion of the Occidental agreements. Two other prominent ones are the Pepsi Cola deal, involving shipments of Pepsi concentrate to the USSR in exchange for equal quantities of Russian vodka for the United States, and a 1974 agreement with Fin-

sider of Italy under which Finsider exports 500,000 tons of large-diameter pipe to the USSR each year during 1975-80 and receives Soviet coal, iron ore, and steel scrap.

In contrast, *compensation agreements* provide for Soviet exports well after the imports to the USSR have been delivered. The exports usually (but not necessarily) originate in the project for which the Soviets are buying Western equipment and technology. The Soviets view the purpose of the exports at least partly as repayment of the credits extended to finance Western equipment imports.

A compensation agreement generally includes three separate contracts. An equipment contract is negotiated by the Soviet importing foreign trade organization and the Western firm supplying the equipment and whatever other licenses, training, and services the Soviets choose to purchase. A credit contract, a common but not essential component of a compensation agreement, defines the transactions between the Soviet Foreign Trade Bank and the Western creditor, either a commercial bank or credit agency of a Western government. The third contract, the export contract, is the distinguishing feature of a compensation agreement. Under the export contract a Western firm—often different from the

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one providing the equipment for the project—agrees to accept long-term deliveries of Soviet products. The export contract in most cases is not formally linked to the credit contract, the repayment of the credit is not conditional on fulfillment of the export contract, and Soviet exports do not directly pay for the imports. Moreover, the length and value of the export contract usually do not coincide with the credit repayment schedule.

Compensation agreements generally progress through three distinct stages: (1) proposals and negotiations leading to contracts, (2) imports and installation of equipment during project construction, and (3) exports of goods and repayment of credits. The first stage usually takes several years. The complexity of negotiations, the scale of the projects, and the number of parties involved on each side, together with frequent changes in Soviet specifications, all complicate and prolong the negotiations.

The second stage—from contract signing until production begins—usually takes three to five years. The Soviets prepare the site, erect the plant shell, and install imported Western equipment—often with the help of Western technicians. The Soviets draw down Western credits as the equipment is delivered.

Once production begins, a substantial share (20 to 30 percent according to Soviet statements) is exported to the West while the rest is available for use in the Soviet economy. The exports generate the hard currency the Soviets need to repay the Western credits and more since the value of the export stream is often much greater than the interest and principal payments. The export contract can run for as long as 20 years but usually corresponds roughly with the length of the credit.

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## APPENDIX B

## USSR: COMPENSATION AGREEMENTS WITH THE WEST

Natural Gas Projects	Agreement Date	Imports (Million US \$)	Imports	Location	Operational Date	Exports
		2,830		See natural gas pipelines in figure 1		
Austria	1968	140	Pipe		1968	Natural gas
Italy	1969	190	Pipe and other equipment		1974	Natural gas
West Germany	1970	350	Pipe		1973	Natural gas
West Germany	1972	500	Pipe		1973	Natural gas
France	1972	250	Pipe		1976	Natural gas
West Germany	1974	600	Pipe and pipeline equipment		1978	Natural gas
France	1974	NA <sup>1</sup>	Pipe		1980	Natural gas
West Germany, Austria, France	1975	800	Pipe and other equipment		1981	Natural gas
Austria	1974	NA	NA <sup>2</sup>		1978	Natural gas
Austria	1975	NA	NA <sup>2</sup>		1978, 1981	Natural gas
Austria	1975	NA	NA <sup>2</sup>		1978, 1981	Natural gas
Chemical		3,244				
West Germany (Uhde)	1965	15	Phosphorous furnaces (2)	Chimkent	1967	Phosphate rock
West Germany (Salzgitter)	1972	39	Polyethylene plant	Kazan	1975	Polyethylene
France (Litwin)	1973	95	Styrene-Polystyrene plant	Omsk	1978	Polyethylene
West Germany (Salzgitter)	1973	62	Polyethylene plant	Severodonetsk	1976	Polyethylene
France (Creusot-Loire)	1974	220	Ammonia plants (4)	2 at Gorlovka, 2 at Odessa	1978	Ammonia
United Kingdom-United States (Constructors John Brown-Union Carbide)	1974	50	Polyethylene plant	Budennovsk	1978	Polyethylene
West Germany (Hoechst)	1974	40	Vinyl chloride plant	Zima	1978	Vinyl chloride
United States (Occidental, Chemico)	1974	400	Ammonia complex	Tolyatti, pipeline to Odessa and port facilities at Odessa and Ventspils	1978	Ammonia
Japan (Asahi)	1974	10	Acrylonitrile plant	Polotsk	1978	Acrylonitrile
Italy (Montedison-Tecnimont)	1974	60	Acrylonitrile plant	Saratov	1978	Acrylonitrile
Italy (ENI-Snam Progetti)	1974-1975	150	Urea plants (3)	Tolyatti	1977	Ammonia
Italy (Pressindustria)	1975	9	Detergent plant	NA	1977	Monethylene glycol and other chemicals

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## APPENDIX B

USSR: COMPENSATION AGREEMENTS WITH THE WEST  
(Continued)

	Agreement Date	Imports (Million US \$)	Imports	Location	Operational Date	Exports
<b>Chemical (continued)</b>						
Italy (Montedison-Tecnimont)	1975	100	Polypropylene plant	Tomsk	1978	Ammonia
Italy (Montedison-Tecnimont)	1975	58	Urea plant (2)	Gorlovka, Novomoskovsk	1978	Ammonia
Italy (Montedison-Tecnimont)	1975	80	Chlorofluoromethane plant (2)	Volgograd, Yavan	1978	Unknown
Italy (Snia-Viscosa)	1975	171	Caprolactum plant	Chirchik	1978	Caprolactum
West Germany (Kloeckner)	1975	68	Polyvinyl chloride plant	Zima	1978	PVC
West Germany (Linde)	1975	106	Ethylene, benzene, propylene plant	Budennovsk	1978	Unknown
West Germany (Kloeckner)	1976	40	Phthalic acid plant	Donetsk	1980	Phthalic acid
France (Technip)	1976	410	Aromatics complex	Ufa, Omsk	1981	Paraxylol, orthoxylol, petroleum
Italy (Montedison)	1976	100	Urea plant (2)	Berezniki and Kemerovo	1979	Ammonia
West Germany (Salzgitter)	1976	78	Ethylene oxide plant	Gorkiy	1978	Monethylene glycol
Japan (Mitsui)	1975	280	Ammonia plants (4)	Cherepovets, Cherkassy, Dneprodzerzhinsk, and Dorogobuzh	1978	Ammonia
West Germany (Kloeckner)	1977	42	Phthalic acid plant		1979	Chemicals
United Kingdom (Davy Powergas)	1977	275	Methanol plant	Gubakha and Tomsk	1981	Methanol
West Germany (Krupp, Koppers)	1977	62	Dimethyl terephthalate plant	Mogilev	1980	DMT, other chemicals, cotton
United Kingdom (Constructors John Brown)	1977	86	Polyethylene plant	Kazan	1980	Chemicals
France (Krebs)	1977	18	Phosphoric acid	Ukraine	1980	Chemicals
West Germany (Krupp Koppers)	1978	120	Dimethyl terephthalate plant	Mogilev	1980	Paraxylol, orthoxylol, DMT, methanol, acetic acid
<b>Other</b>		<b>1,730</b>				
Japan	1968	166	Logging equipment	Lower Amur River	1969	Wood and wood products
Japan	1971	50	Port equipment	Vrangel	1972	Wood chips and lumber
Japan	1974	450	Mining, other equipment	South Yakutsk	1979	Coal
Japan	1974	550	Logging equipment	Siberia	1975	Wood and wood products
Japan (Sodeco)	1974	153	Oil equipment	Sea of Okhotsk	1980	Oil
France (PUK)	1976	300	Alumina plant	Nikolayev	1980	Aluminum
France (Parsons-Whitmore)	1973	61	Pulp plant	Ust-Ilimsk	1978	Cellulose

<sup>1</sup> Not available.<sup>2</sup> The three agreements signed with Austria in 1974-75 were only for supplementary deliveries of gas and required no additional Austrian deliveries.



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